FEDERAL COAL EXPLORATION
LICENSE APPLICATION #U-52831

TRAIL MOUNTAIN AREA
EMERY COUNTY, UTAH

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FEBRUARY 1983

W K Minerals, Inc.
5970 South Syracuse Street, Suite 124
Englewood, Colorado 80111

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RESPONSIBLE PERSONNEL

The persons responsible for operations under the Exploration Plan and to whom notices and orders are to be delivered are as follows:

John Schocke
Vice President
W. K. Minerals, Inc.
5970 South Syracuse Street, Suite 124
Englewood, Colorado 80111-4788
(303) 779-4001

Tom Johnson
Geologist
W. K. Minerals, Inc.
5970 South Syracuse Street, Suite 124
Englewood, Colorado 80111-4788
(303) 779-4001

The names and addresses of surface and mineral owners in the proposed exploration area are as follows:

Surface Ownership

U. S. Department of Agriculture, Forest Service
Ferron, Utah 84523

U. S. Department of the Interior
Bureau of Land Management
Utah State Office
136 East South Temple
Salt Lake City, Utah 84111

Subsurface Ownership

U. S. Department of the Interior
Bureau of Land Management
Utah State Office
136 East South Temple
Salt Lake City, Utah 84111

NOTICE OF INVITATION

W K Minerals, Inc., a subsidiary of Natomas Coal Company proposes to conduct an exploration program as described in this application. All parties interested in participating on a pro rata cost sharing basis are invited to contact Mr. John Schocke, Vice President, W K Minerals, Inc., 5970 So. Syracuse Street, Suite 124, Englewood, Colorado 80111. (Notice of invitation enclosed in Appendix.)

DESCRIPTION OF PROPOSED EXPLORATION AREA

The proposed exploration area is located in northwest Emery County approximately eleven miles northwest of Orangeville, Utah (Figure 1). It is bound on the west by Lower Joes Valley, on the south by Straight Canyon and on the north and east by Cottonwood Creek. The property lies within the Manti-LaSal National Forest with a small portion within Bureau of Land Management lands.

A description of the environment and environmental consequences of coal mining in the region are discussed in the Department of Interior, Uinta-Southwestern Utah, Final Coal Environmental Impact Statement.

The legal description of the exploration area follows that of the proposed Trail Mountain Federal Tract as described in Table 1.

PHYSICAL FEATURES

Geology

The proposed Trail Mountain exploration area lies near the center of the Wasatch Plateau coal field within the Mahogany Point and Joes Valley Reservoir 7½ minute quadrangles.

Previous work has been done by Spieker (1931), Doelling (1972), Davis and Doelling (1977), AAA Engineering (1979), Ellis and Frank (1981), and Kitzmiller (1982). The U. S. Geological Survey and the Utah Geological and Mineral Survey have conducted drilling programs in and adjacent to the exploration area.

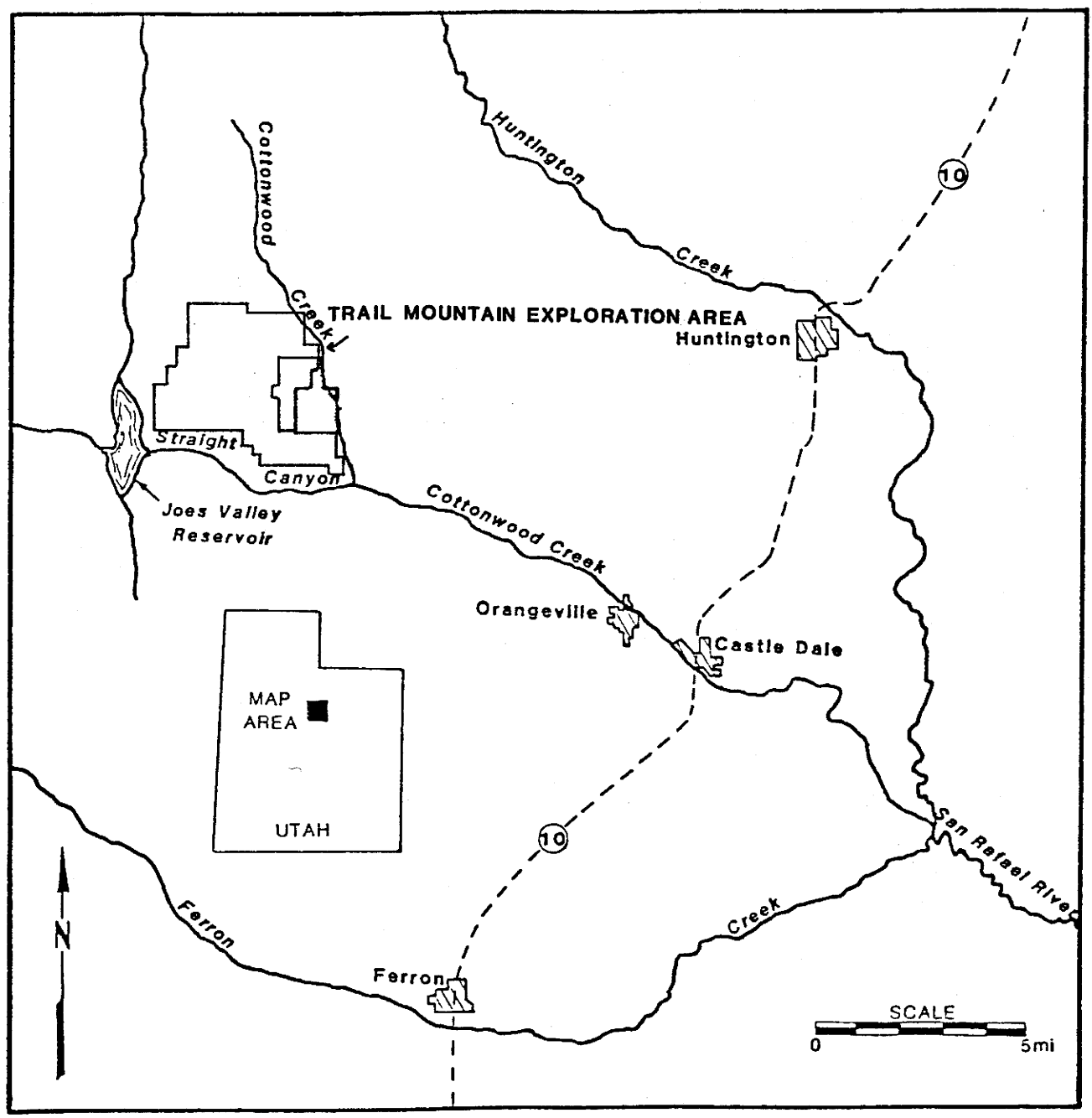

Figure 1. Location of the Trail Mountain Exploration Area.

TABLE I

LEGAL DESCRIPTION

The legal description of the land in Emery County, Utah for which W. K. Minerals is submitting this exploration license application is as follows:

Township 17 South - Range 6 East, S.L.M.

Section 21:	E½W½, E½	480.00 Acres
Section 22:	All	640.00 Acres
Section 23:	All	579.80 Acres
Section 24:	W½W½	160.00 Acres
Section 25:	N½NW¼	80.00 Acres
Section 26:	W½, N½NE¼, W½SW¼NE¼, W½W½SE¼	460.00 Acres
Section 27:	All	640.00 Acres
Section 28:	All	640.00 Acres
Section 29:	E½SE¼	80.00 Acres
Section 32:	E½	320.00 Acres
Section 33:	All	640.00 Acres
Section 34:	All	640.00 Acres
Section 35:	lots 3-4, W½SW¼NE¼, W½W½SE¼ SW¼,S½NW¼	380.49 Acres
		5740.29 Acres

Township 18 South - Range 6 East, S.L.M.

Section 1:	lots 1-8, S½N½	447.66 Acres
Section 2:	lots 1-8, S½N½	451.36 Acres
Section 3:	lots 1 and 2, lot 8	106.35 Acres
		1005.37 Acres

Township 18 South - Range 7 East, S.L.M.

Section 6:	lots 4-7, W½SE¼SW¼, W½E½SW¼	204.95 Acres

TOTAL 6950.61 Acres

The total acreage covered by this application is 6950.61 acres, more or less.

The general stratigraphy of the area consists of members of the Mancos Shale and Mesaverde Group of the Cretaceous System, and Wasatch Group of the Tertiary System (Figure 2). The Masuk Shale member of the Mancos Shale outcrops in the area where Straight Canyon meets Cottonwood Creek. The Mesaverde Group, in ascending order, consists of the Star Point Sandstone, the Blackhawk Formation, and the Price River Formation. The Price River Formation consists of the Castlegate Sandstone Member, which unconformably overlies the Blackhawk, and the overlying Upper Price River Member. Mesaverde outcrops make up the steep canyon walls in the area.

The North Horn Formation and remnants of the Flagstaff Limestone of the Tertiary Wasatch Group cap the top of Trail Mountain. The Blackhawk Formation is the major coal bearing formation of the Mesaverde Group. The only known economically mineable coal at Trail Mountain is the Hiawatha Seam found immediately above the basal Star Point Sandstone. This seam is presently being mined at the Trail Mountain Mine immediately east of the proposed exploration area.

The strata in the area dips generally 3 - 5^{o} to the southwest. No faults have been identified within the exploration area but minor faulting related to the Joes Valley Fault System is likely in the western portion of the application area.

Water Resources

The climate in the Trail Mountain area is considered semi-arid, receiving ten to twenty inches of precipitation annually.

Major streams in the area include Cottonwood Creek to the east of the application area, which is perennial, and Straight Canyon to the south, which is supplied year-round by the Joes Valley Reservoir.

System	Group	Formation		Thickness (feet)	Description
Tertiary	Wasatch	Flagstaff Limestone		100-1,000	Light gray to cream limestone; thin and even bedded; dense; fossiliferous; ledge- and cliff-forming.
		North Horn Formation		900-2,000	Mostly red-, brown-, and salmon-colored shales; varying thicknesses of sandstone, freshwater limestone and conglomerate; slope-forming.
Cretaceous	Mesaverde	Price River Fm.	Upper Price River Member	400-800	Mostly tan and gray, medium- to coarse-grained sandstone; some gray shale and conglomeratic sandstone; ledge- and slope-forming.
			Castlegate Sandstone Member	150-500	Light gray, yellowish brown, and white, medium- to coarse-grained sandstone and conglomeratic sandstone; cliff-forming.
			Disconformity		
		Blackhawk Formation		400-1,100	Light to medium gray sandstones; gray to black shales; gray siltstones; important coal beds in lower half; sandstones weather tan, brown, yellowish brown; ledge- and slope-forming.
		Star Point Sandstone		200-1,000	Tan, light gray, and white massive sandstones separated by one or more shale tongues; cliff-forming.
	Mancos Shale	Masuk Shale		300-1,300	Light gray to blue gray sandy marine shale; thins to west and south; slope-forming.

Figure 2 Generalized section of rocks exposed in the Central and Southern Wasatch Plateau coal field. (Davis and Doelling, 1977)

Ground water aquifers are known to exist in the North Horn Formation, in sandstones of the Blackhawk Formation and in the Star Point Sandstone. Several springs originating from the North Horn Formation supply water to stock and wildlife ponds on Trail Mountain. Care will be taken to assure that ground or surface water will not be adversely effected by the exploration program.

Vegetation

Vegetation in the area consists of Aspen, Conifer, Pinyon, Juniper and various grasses and mountain shrubs. No threatened or endangered plant species have been identified in the area.

Soils

Soils in the area are mainly derived from the North Horn Formation and have a high clay content. By limiting the size of the drill sites and retaining top soil for reclamation purposes, revegetation will not be a problem.

Wildlife

Trail Mountain is a deer and elk winter range. Other animals in the area include cougar, bobcat, rabbit, squirrel, mice and other rodents, reptiles and amphibians. The drilling program will be scheduled to avoid conflict with the deer and elk on winter range.

Threatened or Endangered Species

No threatened or endangered plants or animals have been identified within the application area.

Present Land Use

The present land use of the proposed exploration area is domestic grazing and wildlife habitat. Trail Mountain receives only light summer recreational use. Natomas Trail Mountain Coal Company is presently mining coal in an area adjacent to the proposed exploration area.

Cultural Resources

An archeological report dated August 4, 1980 was prepared by the Forest Service Archeologist, Elise Yakupzack on three of the five drill sites proposed in this application. The report did not find any archeological sites on Trail Mountain. A copy of this report is on file at the Ferron, Utah, Forest Service District office.

Archeological studies will be conducted on the two additional new sites not addressed in the 1980 report.

Access

Forest Service roads #50040 and #50034 are the main access routes through this area. There are also six miles of non-system roads on Trail Mountain. These roads are used for watershed and range management projects as well as for ranching and recreation. The proposed drill sites have been located on or near existing roads, where possible. Several temporary roads may be needed for access to some drill sites (Drawing 1).

DESCRIPTION OF PROGRAM

Methods and Equipment

Rotary drilling and coring will be carried out by one rubber tired, truck mounted drilling rig at five locations on Trail Mountain. Locations are shown on Drawing I and Table II. Support equipment will consist of a water truck and four wheel drive pick-up trucks for the drilling crews and company representative. One truck mounted logging unit will be used for geophysical logging of each hole. A back hoe, bulldozer, and/or grader will be used for the construction of mud pits, maintenance of roads and in reclamation activities.

The drilling program will be conducted in two phases. Phase I is designed to take advantage of drill sites that were previously designated by the U.S.G.S. and approved by the Forest Service. TM-83-1, TM-83-2, and TM-83-5 will be drilled in Phase I. These three sites were previously approved in a 1980 environmental assessment. TM-83-3 and TM-83-4 will be drilled in Phase II. These sites will require an archeological evaluation and approval by the Forest Service.

Each drill hole will be plug-drilled to a point approximately fifty feet above the Hiawatha Seam. From that point the hole will be core drilled through the seam and into the Starpoint Sandstone. Cuttings will be sampled every five feet. The following geophysical logs will be run in each drill hole: Resistivity, Natural Gamma, Density, and Caliper. All drill hole locations in the application area will be surveyed.

Table II

Trail Mountain Exploration Area - Proposed Drill Hole Locations

	Hole No.	Location	Estimated Elevation	Total Depth
		T.18S., R.6E., SLM		
Phase I	Tm-83-1	SWNE Section 21	9370	2400
	TM-83-2	SWSW Section 28	8670	2330
	TM-83-5	SESW Section 26	9160	2310
Phase II	TM-83-3	SWSE Section 23	9250	2325
	TM-83-4	SWSE Section 27	8970	2370

The size of each drill hole will be approximately six inches in diameter. The core will be three inches in diameter. The primary drilling medium will be air, with stiff foam injection to aid in circulation of cuttings to the surface. In the event that air and foam proves to be an insufficient drilling medium, mud will be used and lost circulation material added as deemed necessary.

A W K Minerals representative will be on site supervising the drilling at all times.

Road Construction

Existing roads and trails will be used wherever possible, and movement of equipment across undisturbed land will be kept to a minimum. If necessary, brush will be cleared from an eight foot wide path to the drill site. New or additional roads will be constructed only when absolutely necessary and only immediately prior to the drilling operations. Any top soil removed during road construction will be stockpiled and redistributed when the roads are reclaimed. Rehabilitation of existing trails and reclamation of constructed road will be done in compliance with Forest Service regulations.

Drilling Sites

All drill sites have been located next to existing roads and trails, where possible. The size of each site will be kept to a minimum. Top soil will be stripped from drill sites, and stockpiled to prevent contamination. A pit will be dug at each site to contain drilling fluid and cuttings and serve as a mud pit if necessary. Water for drilling operations will be obtained at a site determined in cooperation with the Forest Service and the Cottonwood Creek Irrigation Company or will be trucked in.

MEASURES TO PREVENT ADVERSE EFFECTS

Fire

Measures will be taken to prevent fire. All equipment will have working mufflers and spark arrestors. Fire control equipment will be kept at the drill rig including a fire extinguisher, shovel, and ax.

Erosion

Roads will have water bars constructed to prevent excessive erosion. Two track roads will be watered as needed to prevent the loss of material. At the conclusion of the program each drill site will be leveled, top soil replaced and recontoured, scarified and reseeded to prevent erosion.

Pollution to Surface Water, Ground Water and Air

Air and biodegradable foam are the anticipated drilling medium for this program. All aquifers encountered during drilling will be documented as to depth and flow rate estimates. Precautionary measures will be taken to prevent contamination of all aquifers. Temporary vehicular exhaust and limited dust will be the only air pollution anticipated.

Damage to Fish and Wildlife or Their Habitat and Other Natural Resources

Damage to fish and wildlife or their habitat will be negligible due to the temporary nature of the exploration program. The program will be completed before the deer and elk return to their winter range. No explosives will be used in the program. Noise will be kept at a minimum, limited only to the sounds of the drilling rig. If any artifacts or remains of cultural or paleontological value are discovered, operations will cease and

the proper authority will be notified. Previous drilling in the area has encountered no significant quantities of gas in the formations that will be penetrated, so blow-out control devices are not necessary.

Hazards to Public Health and Safety

This program poses no threat to public health and safety. All drilling and exploration personnel will adhere to all applicable federal, state and W. K. Minerals safety and health regulations.

METHODS OF PLUGGING DRILL HOLES

All drill holes will be plugged in accordance with the requirements set forth by the U.S.G.S., the Forest Service, and the State of Utah. This will typically involve sealing each hole from total depth to surface with cuttings, cement and/or heavy media (Figure 3).

RECLAMATION PLAN

All reclamation will be conducted in compliance with Forest Service regulations. Prior to drilling a site, approximately six inches of top soil will be stripped and stockpiled for reclamation purposes. A mud pit large enough to hold any drilling fluid and cuttings will be constructed at each site. A fence will be built around the pit to prevent accidental entry by livestock and wildlife. When the pit is completely dry, it will be filled, the drill site returned to approximate original contour, scarified, and top soil redistributed. Seeding methods, mixtures, and timing will depend on stipulations issued by the Forest Service. Seeding will probably take place in early to middle fall to ensure early spring germination. All trash, chemicals or other harmful products will be disposed of properly.

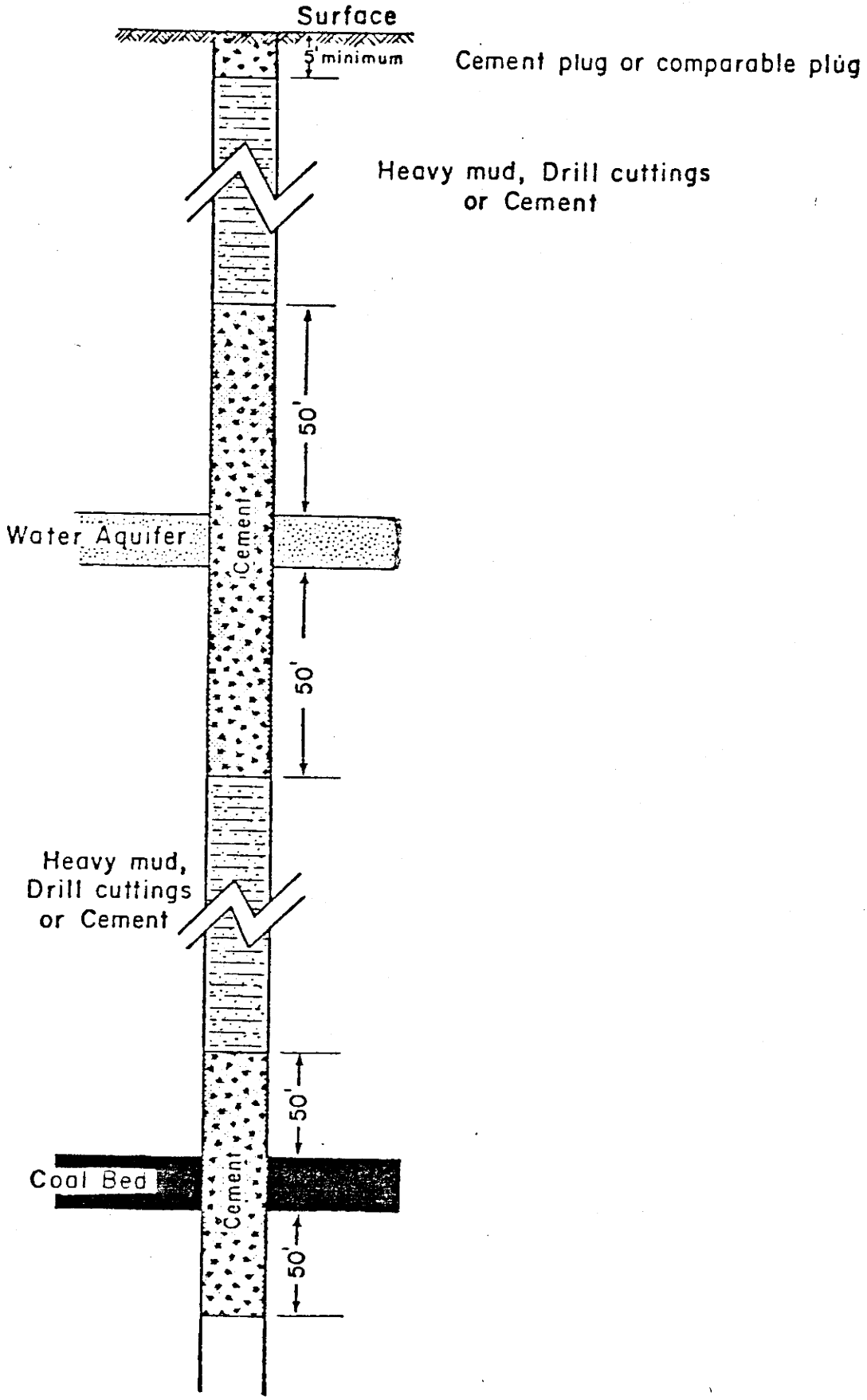

Figure 3. Typical drill hole abandonment (USGS).

Construction of temporary access roads will be kept to a minimum. Immediately after use of temporary roads has ceased they will be closed to vehicular traffic and the natural drainage pattern restored. Water bars and/or cross drains shall be constructed where deemed appropriate by the Forest Service. These surfaces will then be revegetated.

ESTIMATED TIME TABLE

The exploration program in the application area is scheduled to begin as soon as weather permits. Typically Trail Mountain is not accessable until the middle of June. The exploration activities should be completed by the end of August 1983, provided there are no unforseen delays.

REFERENCES SITED

AAA Engineering and Drafting, Inc., 1979a, Coal resource occurence and coal development potential maps of the Southwest Quarter of the Hiawatha 15 minute quadrangle, Emery County, Utah: U.S. Geol. Survey Open-file Report 79-900.

Davis, F.D., and Doelling, H.H., 1977, Coal drilling at Trail Mountain, North Horn Mountain, and Johns Peak areas. Wasatch Plateau, Utah: Utah Geol. and Min. Survey Bull. 112.

Doelling, H.H., 1972, Wasatch Plateau coal field, in central Utah coal fields: Utah Geological and Mineralogical Survey Monograph No.3.

Ellis, E.G., and Frank, J.R., 1981, Geologic Map and Coal Sections of the Mahogany Point Quadrangle, Emery County, Utah: U.S. Geol. Survey Open-file Report 81-718.

Kitzmiler II, J.M., 1982, Preliminary Geologic Map of the Joes Valley Reservoir Quadrangle, Emery and Sanpete Counties, Utah: U. S. Geol. Survey Bull. 819.

Appendix

Utah; Notice of Invitation to Participate in Coal Exploration Program; W.K. Minerals, Inc.

W. K. Minerals is inviting all qualified parties to participate in its proposed exploration of certain Federal coal deposits in the following described lands in Emery County, Utah:

Township 17 South - Range 6 East, S.L.M.

Section	21:	E½W½, E½	480.00 Acres
Section	22:	All	640.00 Acres
Section	23:	All	579.80 Acres
Section	24:	W½W½	160.00 Acres
Section	25:	N½NW¼	80.00 Acres
Section	26:	W½, N½NE¼, W½SW¼NE¼, W½W½SE¼	460.00 Acres
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Section	28:	All	640.00 Acres
Section	29:	E½SE¼	80.00 Acres
Section	32:	E½	320.00 Acres
Section	33:	All	640.00 Acres
Section	34:	All	640.00 Acres
Section	35:	lots 3-4, W½SW¼NE¼, W½W½SE¼ SW¼,S½NW¼	380.49 Acres
			5740.29 Acres

Township 18 South - Range 6 East, S.L.M.

Section	1:	lots 1-8, S½N½	447.66 Acres
Section	2:	lots 1-8, S½N½	451.36 Acres
Section	3:	lots 1 and 2, lot 8	106.35 Acres
			1005.37 Acres

Township 18 South - Range 7 East, S.L.M.

Section	6:	lots 4-7, W½SE¼SW¼, W½E½SW¼	204.95 Acres

TOTAL 6950.61 Acres

Any party electing to participate in this exploration program must send written notice of such election to the Bureau of Land Management, University Club Building, 136 East South Temple, Salt Lake City, Utah 84111, and to John Schocke, Vice President, W. K. Minerals, Inc., 5970 South Syracuse Street, Suite 124, Englewood, Colorado 80111. Such written notice must be received within thirty days after publication of this notice in the Federal Register.

AMENDMENT

FEDERAL COAL EXPLORATION
LICENSE APPLICATION #U-52831

TRAIL MOUNTAIN AREA
EMERY COUNTY, UTAH

AMENDMENT

ADDITION OF ALTERNATE DRILL HOLE LOCATION

WK Minerals is interested in the addition of one alternate drill hole location. This location, TM-7, was previously drilled by the Minerals Management Service in 1982 (Drawing 1-A). TM-7 was cased to a depth of 1490 feet and drilled to a total depth of 2500 feet. An attempt will be made to re-enter the hole, drill out the cement and mud plug, and core an additional 30 feet. Reclamation activities will be conducted as described in the original application. If the results prove satisfactory, the drilling of TM-83-4 will not be necessary.

The redrilling of TM-7 will require the use of a rubber tired, truck-mounted core rig, supported by a water truck and 4 x 4 pick-up trucks. Completion of this work is expected to take approximately five days.

AMENDMENT

HIGH RESOLUTION SEISMIC SURVEY

PURPOSE

The purpose of adding a seismic survey to the exploration program is to identify faults and fault zones of concern to underground coal mining in the area.

RESPONSIBLE PERSONNEL

The WK Minerals, Inc. representative responsible for the supervision of this survey is:

Tom Johnson
Geologist
WK Minerals, Inc.
5970 South Syracuse Street, Suite 124
Englewood, Colorado 80111
(303) 779-4001

The contractor responsible for data collection is:

Emerald Exploration
8108 Mesa, Suite A-215
Austin, Texas 78759
(512) 346-0251

DESCRIPTION OF PROGRAM

Location

This survey will be conducted on the proposed Trail Mountain Federal Tract as described in the original application, serial number U-52831. The seismic line (A-A') will run from the northern boundary line of the application area, along the Manti Forest-Trail Mountain road (#50034) for a distance of approximately 3.2 miles (Drawing 1-A).

Methods and Equipment

The data gathering will begin with the location of the line and flagging of the shot hole locations. Shot holes will be drilled off to the side of the road with a trailer-mounted auger to a depth of approximately eight feet. The shot holes will be loaded with a maximum one pound charge of dynamite. An array of geophones will then be laid down on the surface along the line of shot holes. When the hole locations have been surveyed, the charges will be detonated and the seismic reflections recorded. Seven 4 x 4 vehicles and two trailer-mounted augers will be used for the survey.

MEASURES TO PREVENT ADVERSE EFFECTS

Surface Disturbance

Disturbance of the surface will be negligible because the survey will be conducted along an existing access road. Additional access roads will not be necessary. All vehicles will stay on existing roads. Augering of the shot holes and detonation of the charges will cause little or no disturbance to the surface. Upon completion all holes will be filled and the immediate area reclaimed according to Forest Service specifications.

Safety Measures

Each vehicle will have working mufflers and spark arrestors, and will be equipped with fire extinguishers and shovels. Survey personnel will adhere to all applicable federal, state and WK Minerals safety and health regulations.

Pollution

Several springs occur near the proposed seismic survey. In areas where the shot holes may cause disturbance to the surface or gound water, they will be relocated or eliminated. Temporary vehicular exhaust and limited dust will be the only air pollution anticipated. Detonation of the dynamite will produce a muffled sound heard only in the immediate area.

ESTIMATED TIMETABLE

The seismic survey is scheduled to begin on or about August 19, 1983. The survey activities should take approximately seven days to complete.